

URGENT

*TB 1-1520-244-20-47

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

INSPECTION OF TAIL ROTOR YOKE AND TRUNNION ASSEMBLIES ON AH-1 SERIES AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
15 March 2000

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NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. Priority Classification. URGENT.

NOTE

IAWAR 95-1, Paragraph 6-6.a., MACOM commanders may authorize temporary exception from ASAM messages/TB requirements. Exceptions may only occur when combat operations or matter of life or death in civil disasters or other emergencies are so urgent that they override the consequences of continued aircraft operations.

a. Aircraft in Use. Upon receipt of this TB, the condition status symbol of the cited aircraft will be changed to a **Red Horizontal Dash //--//**. The **Red Horizontal Dash //--//** entry shall state "Inspect the Tail Rotor Yoke and Trunnion Assemblies IAW AH-1-ASAM-00-06 (TB 1-1520-244-20-47) within the next 10 flight hours, but NLT 13 March 2000 for aircraft that are flyable, and NLT 13 April 2000 for aircraft that are grounded." The **Red Horizontal Dash //--//** may be cleared when the inspection of paragraph 8, and any required corrective action, is completed. The affected aircraft shall be inspected as soon as practical, but no later than 10 flight hours or 13 March 2000 for aircraft that are flyable, and 13 April 2000 for aircraft that are grounded. Failure to comply with the requirements of this TB within the time frame will cause the status symbol to be upgraded to a **Red //X//**.

b. Aircraft in Depot Maintenance. Aircraft will not be issued until compliance with subject message or this TB has been completed.

c. Aircraft Undergoing Maintenance. Same as paragraph 1.b.

*This TB supersedes USAAMCOM Aviation Safety Action Message (ASAM) AH-1-00-ASAM-06, 251154Z, Feb 00.

d. Aircraft in Transit.

(1) **Surface/Air Shipment.** Within 10 hours or 14 days of arrival.

(2) **Ferry Status.** Inspect at final destination.

e. Maintenance Trainers (Category A and B). N/A.

f. Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves. Upon receipt of the message/TB the material condition tags of all items in all condition codes listed in paragraphs 6 and 7 shall be annotated to read "AH-1-00-ASAM-06, (TB 1-1520-244-20-47), AH-1 Series Aircraft, Tail Rotor Yoke Assembly, Not Complied With".

(1) **Wholesale Stock.** N/A.

(2) **Retail Stock.** Report receipt of subject message or this TB IAW paragraph 14.c.(2). Upon receipt of subject message or this TB, commanders and others maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the inspection required by paragraph 8 and the correction procedures of paragraph 9 on discrepant materiel. Disposition of discrepant material will be IAW paragraph 10. Report compliance with subject message or this TB IAW paragraph 14.d.(2).

g. Components/Parts in Work. (Depot Level and Others) Items listed in paragraphs 6 and 7 in work will not be issued until compliance with subject message or this TB.

2. Task/Inspection Suspense Date. Complete the inspection IAW paragraph 8 within the next 10 flight hours, but NLT:

- a. 13 March 2000 for flyable aircraft.
- b. 13 April 2000 for aircraft that are grounded.
- c. Report IAW paragraph 14.b. as applicable.

3. Reporting Compliance Suspense Date. Report compliance IAW paragraph 14.a. NLT 17 March 2000.

4. Summary of the Problem.

a. Background. Recent FAA directives regarding commercial Bell tail rotor yokes (AH-1 uses a Bell commercial tail rotor design) have led to a reexamination of tail rotor yoke inspections and procedures. Potential deficiencies can exist in this area as a result of tail rotor flapping in high winds while parked. This TB addresses these deficiencies and reinforces the importance of tail rotor tie down procedures.

b. For Manpower/Downtime and Funding Impacts. See paragraph 12.

c. Purpose of this TB:

- (1) Require additional inspections of the AH-1 tail rotor yoke.
- (2) Raise awareness of potential hazards.

5. End Items to be inspected. All AH-1 series aircraft.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Hub Assembly, Tail	212-010-701-9	1615-00-316-0610

7. Parts to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Yoke Assembly, Tail	212-010-704-5	1615-00-172-4520
Trunnion Assembly	205-012-716-1	1615-00-172-4519

8. Inspection Procedures.

a. Parts Installed on Aircraft.

(1) Remove the tail rotor hub from the aircraft per TM 55-1520-236-23 and inspect the tail rotor yoke (part number 212-010-704-5, NSN 1615-00-172-4520), and tail rotor trunnion assembly (part number 205-012-716-1, NSN 1615-00-172-4519) IAW the inspection noted in paragraph 8.c. of this TB.

NOTE

The tail rotor hub must be disassembled and inspected by an AVIM or depot level maintainer.

(2) If the parts pass the inspection, the inspection is complete. The **Red Horizontal Dash //--//** will be cleared and compliance with AH-1-00-ASAM-06 and TB 1-1520-244-20-47 will be noted.

b. Parts in Stock.

(1) Perform the inspection of tail rotor hub assemblies in stock IAW paragraph 8.c. of subject message or this TB. This inspection will also be applied to yoke assemblies in stock that have been installed on aircraft. New, unused yoke and trunnion assemblies do not need to be inspected.

(2) If the yoke and trunnion passes, compliance with AH-1-00-ASAM-06 AND TB 1-1520-244-20-47 will be noted. The part will be retagged as it was prior to the inspection.

c. Inspection.

(1) This procedure must be performed by an AVIM or depot level maintainer certified for nondestructive inspection (NDI) to MIL-STD-410E or NAS410, or MOS qualified 68DN2.

(2) Inspect the yoke and trunnion as follows:

(a) Fluorescent penetrant inspection method per TM 55-1500-335-23, for cracks. The bearings must be protected from entry by inspection media. Bearings should not be removed.

(b) Inspect the yoke and trunnion IAW TM 55-1520-236-23, figures 5-72 and 5-73.

(3) If a part fails inspection proceed to paragraph 9.a..

9. Correction Procedures.

a. Parts Installed on Aircraft and in Stock at All Levels.

(1) If the yoke or trunnion has failed inspection, replace IAW TM 55-1520-236-23 with serviceable parts from supply.

(2) Tail rotor blades may be reused if they pass the inspection criteria in TM 55-1520-236-23, paragraph 5-110, as revised by subject message or this TB.

(3) Tag failed yoke assemblies and trunnion assemblies as unserviceable (condemned) with DD Form 1577 (RED). Dispose of unserviceable yokes and trunnions as specified in paragraph 10.d..

(4) The inspection is complete and the **Red Horizontal Dash //--//** is to be cleared. Compliance with AH-1-00-ASAM-06 AND TB 1-1520-244-20-47 will be noted.

b. Changes to AH-1 Inspections:

- (1) Add the following Caution to TM 55-1520-236-23, page 1-52, paragraph 1-39.g.(5):

CAUTION

Tail rotor assemblies left unrestrained in high winds may suffer significant damage due to high impact flapping against the stops. This damage can require replacement of the tail rotor yoke and trunnion set.

- (2) Add the following to TM 55-1520-236-23, page 1-64, area 11: Tail rotor blades subjected to high winds. Tail rotor blades that were unrestrained and/or torn loose from their tie down during high winds (30 knots or more) are to be given the inspections specified in paragraphs 5-93 and 5-110.

(3) Revise TM 55-1520-236-23, page 5-149, paragraph 5-93.a.(1) as follows: Inspect both the tail rotor historical records and the tail rotor hub for evidence that the tail rotor has been subjected to an accident or incident outside the realm of normal usage. If such evidence exists, perform the applicable special inspections for overspeed, sudden stoppage, engine compressor stall, overtorque, and high wind outlined in chapter 1 and steps (2) through (6).

- (4) Revise TM 55-1520-236-23, page 5-149, paragraph 5-93.a.(6) to add the following Note:

NOTE

There is a potential for damage to the yoke in areas where the yoke comes into contact with the trunnion flapping stops.

(5) Revise TM 55-1520-236-23, page 5-171, paragraph 5-110.a.(1) as follows: Inspect both the tail rotor historical records and the tail rotor blades for evidence that the blades have been subjected to an accident or incident outside the realm of normal usage. If such evidence exists, perform the applicable special inspections for overspeed, sudden stoppage, hard landing, overtorque, and high wind outlined in chapter 1 and the following.

(6) Add the following to TM 55-1520-236-23, page 5-173, paragraph 5-110.a.(4) – High wind inspection.

(a) Check for bond separation anywhere on the blade. If any separations exist, dispose of blade locally.

(b) Inspect the blade skin visually for wrinkles and deformations. If damage is present, replaced damaged blade.

(c) If the blade passes inspections noted in 9.b.(6)(a) and (b), and there is no other visible damage due to high wind, the blade is serviceable.

(7) TM 55-1520-244-PM – A requirement for a fluorescent penetrant inspection of the tail rotor yoke and trunnion per TM 55-1500-335-23 will be added for every phase inspection. This inspection will be carried on the DA Form 2408-18 until it is incorporated into the phase manual. ULLS-A users will use one of their 800 inspection numbers for this inspection.

10. Supply/Parts and Disposition.

a. Parts Required. Items cited in paragraphs 6 and 7 may be required to replace defective items.

b. Requisitioning Instructions. Requisition replacement parts using normal supply procedures. All requisitions shall use Project Code (CC 57-59) "XGB" .

NOTE

Project code "XGB" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of SOF actions.

c. Bulk and Consumable Materials. N/A.

d. Disposition. Demilitarize/mutilate any part/component which does not meet inspection criteria IAW TM 1-1500-328-23. Report the aircraft serial number of any aircraft where parts are condemned as a result of this message by datafax or e-mail to the logistics point of contact listed in paragraph 16.b..

e. Disposition of Hazardous Material. N/A.

11. Special Tools, Jigs and Fixtures Required. N/A.

12. Application.

a. Category of Maintenance. AVIM. Aircraft downtime will be charged to AVIM maintenance.

b. Estimated Time Required.

(1) AVUM – to remove and reinstall the tail rotor hub.

(a) Total of 8 man-hours using 1 persons.

(b) Total of 8 hours downtime for one end item. Downtime includes time required for test flight.

(2) AVIM or Depot – to conduct the inspection – total of 8 man-hours using 1 person.

c. Estimated Cost Impact to the Field.

NOMENCLATURE	P/N	NSN	QTY.	COST EA.
Yoke Assembly, Tail	212-010-704-5	1615-00-172-4520	1	\$3822.00
Trunnion Assembly	205-012-716-1	1615-00-172-4519	1	\$699.30

Total cost per aircraft = \$4521.30.

d. TB/MWOs to be Applied prior to or concurrently with this Inspection. N/A

e. Publications which Require Change as a Result of this Inspection.

(1) TM 55-1520-236-23.

(2) TM 55-1520-244-PM.

13. References.

a. TM 55-1520-236-23.

b. TM 55-1520-244-PM.

c. TM 55-1520-255-23.

d. TM 1-1500-328-23.

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of the message/TB on DA Form 2408-13-1 for all subject mission design series (MDS) aircraft, forward a priority message, datafax or E-mail to CDR, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5000 in accordance with (IAW) AR 95-1. Datafax number is DSN 897-2111 or commercial (256) 313-2111. E-mail address is <safeadm@redstone.army.mil>. The report will cite the message/TB number, date of entry on DA Form 2408-13-1, aircraft MDS, and serial numbers of aircraft in numerical order.

b. Task/Inspection Reporting Suspense Date (Aircraft). Upon completion of inspection, units will forward a priority message to the logistics POC in paragraph 16.b.. The report will cite the message/TB number, date of inspection, aircraft serial number, aircraft and component hours, and results of the inspection. Inspection reports will be completed no later than 30 days after task/inspection suspense date.

c. Reporting Message/TB Receipt (Spares). N/A.

d. Task/Inspection Reporting Suspense Date (Spares). N/A.

e. The Following Forms are Applicable and are to be Completed in Accordance with DA Pamphlet 738-751, dated 15 March 1999:

NOTE

Unit Level Logistics System-Aviation (ULLS-A) users will use applicable electronic "-E" forms.

(1) DA Form 2408-5-1, Equipment Modification Record.

(2) DA Form 2408-13, Aircraft Status Information Record.

(3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.

(4) DA Form 2408-15, Historical Record for Aircraft.

(5) DA Form 2408-16, Aircraft Component Historical Record.

(6) DA Form 2408-18, Equipment Inspection List.

(7) DA Form 2410, Component Removal and Repair/Overhaul Record.

(8) DD Form 1574/DD Form 1574-1, Serviceable Tag/Label - Materiel (Color Yellow). Annotate Remarks Block with "Inspected Serviceable IAW AH-1-00-ASAM-06 (TB 1-1520-244-20-47)".

(9) DD Form 1575/DD Form 1575-1, Suspended Tag/Label - Materiel (Color Brown). Annotate Remarks Block with "Suspended IAW AH-1-00-ASAM-06 (TB 1-1520-244-20-47)".

(10) DD Form 1577/DD Form 1577-1, Unserviceable (Condemned) Tag/Label - Materiel (Color Red). Annotate remarks block with "Condemned IAW AH-1-00-ASAM-06 (TB 1-1520-244-20-47) and Mutilated IAW TM 1-1500-328-23".

(11) DD Form 1577-2/DD Form 1577-3, Unserviceable (Reparable) Tag/Label - Materiel (Color Green). Annotate remarks block with "Unserviceable IAW AH-1-00-ASAM-06 (TB 1-1520-244-20-47)".

15. Weight and Balance. N/A.

16. Points of Contact

a. Technical points of contact for this message/TB are:

(1) Primary - Mr. Gerald Johnson, AMSAM-RD-AE-I-D-O, DSN 645-9545 or Commercial (256) 955-9545, Datafax is DSN 645-9536. E-mail is <gerald.johnson@redstone.army.mil>.

(2) Alternate - Ms. Denise Bouchard, AMSAM-RD-AE-I-D-O, DSN 645-9736 or Commercial (256) 955-9736. Datafax is DSN 645-9536. E-mail is <denise.bouchard@redstone.army.mil>.

b. Logistical point of contact for this message/TB is Mr. Leonard Monk, AMSAM-DSA-AS-ASH-L, DSN 645-7605 or Commercial (256) 955-7605. Datafax is DSN 645-9536. E-mail is <leonard.monk@redstone.army.mil>.

c. Wholesale Materiel point of contact (Spares) is Mr. Jerry Kelly, AMSAM-MMC-VS-UN, DSN 897-1538 or Commercial (256) 313-1538. Datafax is DSN 764-3319. E-mail is <kelly-jl@redstone.army.mil>.

d. Forms and Records point of contact for the message/TB is: Ms. Ann Waldeck, AMSAM-MMC-RE-FF, DSN 746-5564 or Commercial (256) 876-5564. Datafax is DSN 746-4904. E-mail is <waldeck-ab@redstone.army.mil>.

e. Safety point of contact for the message/TB is: Mr. Howard Chilton, AMSAM-SF-A, DSN 897-2068 or Commercial (256) 313-2068. Datafax is DSN 897-2111 or Commercial (256) 313-2111. E-mail is <howard.chilton@redstone.army.mil>.

f. Foreign Military Sales recipients requiring clarification of action advised by the message/TB should contact: CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0410 or Commercial (256) 313-0410. E-mail is <wittstromjl@redstone.army.mil> or Mr. Ronnie W. Sammons, AMSAM-SA-CS-NF, DSN 897-0408 or Commercial (256) 313-0408. Datafax is DSN 897-0411 or Commercial (256) 313-0411. E-mail is <sammonsrw@redstone.army.mil>. Huntsville, AL, is GMT minus 6 hours.

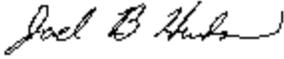
g. After hours contact the AMCOM Command Operations Center (COC) DSN 897-2066/2067 or Commercial (256) 313-2066/2067.

17. Reporting of Errors and Recommending Improvements. You can improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-LS-LP, Redstone Arsenal, Alabama 35898-5230. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address at <ls-lp@redstone.army.mil>, or by datafax at DSN 788-6546 or commercial (256) 842-6546. Instructions for sending a DA Form 2028 by E-mail may be found at the back of most Technical Manuals.

TB 1-1520-244-20-47

By Order of the Secretary of the Army:

Official:



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Distribution:

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